

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicants: Johan Torsner, *et al.*

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Group Art Unit: 2617

Application No 10/551,941

Examiner: Donado, Frank E

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Customer No.: 27045

For: Method and System of Retransmission

Via EFS-Web

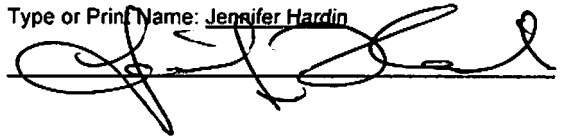
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APPEAL UNDER 35 U.S.C. §134

This Appeal Brief is submitted to appeal the decision of the Primary Examiner as set forth in the Final Official Action dated December 8, 2009, finally rejecting claims 1-12, which are all of the pending claims in this application, and the Advisory Action dated March 11, 2010.

The Commissioner is hereby authorized to charge any appropriate fees under 37 C.F.R. §41.20(b)(2) that may be required by this paper, and to credit any overpayment, to Deposit Account No. 50-1379.

Real Party in Interest

The real party in interest, by assignment, is: Telefonaktiebolaget LM Ericsson (publ)
SE-164 83
Stockholm, Sweden

Related Appeals and Interferences

None

Status of Claims

Claims 13-42 were previously cancelled and are not appealed. Claims 1-12 remain pending, each of which are finally rejected and form the basis for this appeal.

Status of Amendments

The claims set out in the Claims Appendix include all entered amendments. No amendment has been filed subsequent to the final rejection.

Summary of Claimed Subject Matter

Claim Element	Specification Reference
1. A method of reducing impact of transmission errors by means of a retransmission protocol, utilizing a retransmission loop involving packet radio transmissions from user equipment to a control element connected to one or more radio base stations, wherein the user equipment radio transmissions are received at one or more radio base stations for forwarding to the control element, the base station acknowledging, positively or negatively, transmissions from the user equipment and the control element acknowledging, positively or negatively, transmissions forwarded to it.	Page 7, line 11, <i>et seq.</i> Figure 3; page 3, lines 7-20; page 11, lines 13-23. Page 12, line 28, <i>et seq.</i> Page 15, line 23, to page 16, line 7.

The specification references listed above are provided solely to comply with the USPTO's current regulations regarding appeal briefs. The use of such references should not be interpreted to limit the scope of the claims to such references, nor to limit the scope of the claimed invention in any manner.

Grounds of Rejection to be Reviewed on Appeal

- 1.) Whether claims 1-9, 11 and 12 are unpatentable, under 35 U.S.C. §103(a), over Vayanos, *et al.* (U.S. Patent No. 6,901,063), in view of Yun, *et al.* (U.S. Patent Publication No. 2002/0176362); and,

- 2.) Whether claim 10 is unpatentable, under 35 U.S.C. §103(a), over Vayanos, *et al.* (U.S. Patent No. 6,901,063) in view of Yun, *et al.* (U.S. Patent Publication No. 2002/0176362) and Puuskari (U.S. Patent No. 7,330,439).

Arguments

- 1.) **Claims 1-9, 11 and 12 are patentable over Vayanos, *et al.* (U.S. Patent No. 6,901,063), in view of Yun, *et al.* (U.S. Patent Publication No. 2002/0176362)**

So that the Board can appreciate the context in which the Examiner's present claim rejections have arisen, the Applicants first present the course of prosecution. In a Non-Final Office Action issued on November 26, 2008, the Examiner first rejected claims 1-9, 11 and 12 as being anticipated by Vayanos, *et al.* (U.S. Patent No. 6901603), and rejected claim 10 as being unpatentable over Vayanos in view of Puuskari, *et al.* (U.S. Patent No. 7,330,439). The Applicants submitted arguments traversing those rejections, and the Examiner issued a new Non-Final Office Action on May 8, 2009, withdrawing the rejection of claims 1-9, 11 and 12 as being anticipated by Vayanos. In that office action, however, the Examiner rejected claims 1-9, 11 and 12 as being unpatentable over Vayanos in view of Yun, *et al.* (U.S. Patent Publication No. 2002/0176362); and claim 10 as being unpatentable over Vayanos in view of Yun and Puuskari (U.S. Patent No. 7,330,439). The Examiner acknowledged that Vayanos "does not teach acknowledgement of base station transmissions from a control element."¹ To overcome that acknowledged deficiency, the Examiner added the teachings of Yun to each of his prior bases of rejection; those rejections are appealed herein.

Claim 1 recites:

1. A method of reducing impact of transmission errors by means of a retransmission protocol, utilizing a retransmission loop involving packet radio transmissions from user equipment to a control element connected to one or more radio base stations, wherein the user equipment radio transmissions are received at one or more radio base stations for forwarding to the control element, the base station acknowledging, positively or negatively, transmissions from the user equipment and the control element acknowledging, positively or negatively, transmissions forwarded to it. (emphasis added)

¹ Office Action dated May 8, 2009; page 3, lines 13-14.

As described in response to the first office action, in which the Examiner rejected claim 1 as anticipated by Vayanos, the Applicants' invention is characterized by user equipment radio transmissions that are received at one or more radio base stations **for forwarding to** a control element (e.g., a Radio Network Controller). Accordingly, the base stations and the control element are, *inherently*, distinct entities. **A base station acknowledges, positively or negatively, transmissions received from the user equipment; and, in turn, the control element acknowledges, positively or negatively, transmissions forwarded to it from the one or more base stations.** As Applicants specification discloses, the prior art teaches retransmissions between a user equipment and a Radio Network Controller (RNC) (the claimed "control element").² In order to reduce uplink retransmission delay, the Applicants invention introduces an additional layer of retransmission protocol through the use of acknowledgements **between the radio base station and user equipment, in addition to** the conventional acknowledgement mechanism **by the control element**. Vayanos fails to teach that combination of functions to reduce uplink retransmission delays.

To support the argument that Yun overcomes the acknowledged deficiency of Vayanos, the Examiner refers to paragraphs 213 and 214 of Yun, asserting that Yun teaches:

"acknowledgement of base station transmissions from a control element within a Controller (A Base Station Controller sends acknowledgement of base station transmissions from a control element within a Controller, Paragraphs 213 and 214)."³

To understand what Yun actually teaches, however, it is necessary to consider Paragraphs 213 and 214 in context to the preceding Paragraphs 211 and 212 and subsequent Paragraph 215, to wit:

[0211] First of all, it has to be considered where ACK and NAK commands are managed in order to apply a reverse HARQ system to a management method of the ACK and NAK commands.

[0212] Namely, it should be firstly taken into consideration that the ACK and NAK commands are managed by **either** a base transceiver system

² Specification; page 7, line 10, *et seq.*

³ Office Action dated May 8, 2009; page 3, line 13, *et seq.*

(hereinafter abbreviated BTS) or a base station controller (hereinafter abbreviated BSC).

[0213] If BSC controls ACK and NAK, all BTSs in an active set comes into transmission of the demodulated packets to ESC. Therefore, BSC generates an ACK signal if there exists at least one good packet or a NAK signal if all the packets transmitted from BTS are bad, so as to transmit such signals to all BTSs in the active set.

[0214] Then, all BTSs begin to transmit the same ACK or NAK signals to a terminal. If such a system is used, the terminal enables to carry out a soft combining on the ACK and NAK signals so as to increase the reliance for the ACK and NAK signals. Unfortunately, a performance delay time of HARQ increases as well.

[0215] Instead, if BTS directly handles the ACK and NAK signals, there occurs no delay problem between BSC and BTS. Yet, all BTSs in the active set may generate ACK or NAK signals which are different respectively, whereby the terminal is unable to apply the soft combining to these signals.

(emphasis added)

From the full teachings of Yun, it is apparent that it teaches ACK and NACK signals that are managed by a radio base station (*i.e.*, a Base Transceiver Station (BTS)) or a control element connected to one or more radio base stations (*i.e.*, a Base Station Controller (BSC)). Yun fails, however, to disclose a method characterized by the use of acknowledgements between the radio base station and user equipment, in addition to an acknowledgement mechanism by the control element. Thus, Yun fails to overcome the deficiencies in the teachings of Vayanos.

In the Final Office Action dated December 8, 2009, the Examiner maintained the rejection of claims 1-9, 11 and 12 as being unpatentable over Vayanos in view of Yun; and, claim 10 as being unpatentable over Vayanos in view of Yun and Puuskari. In rejecting Applicants' prior arguments (*supra*) as "not persuasive," the Examiner again acknowledged that Vayanos fails to teach the use of a retransmission protocol between a user equipment and a control element, but relied on its teachings solely for a retransmission protocol between a user equipment and a base station. As pointed out by Applicants' in the response to the prior office action, Yun teaches ACK and NACK signals that are managed by a radio base station (*i.e.*, a Base Transceiver Station

(BTS)) or a control element connected to one or more radio base stations (*i.e.*, a Base Station Controller (BSC)). The Examiner asserts that because Yun teaches the use of ACK and NACK signals between a control element and a user equipment, and Vayanos teaches the use of ACK and NACK signals between a radio base station and a user equipment, it would be obvious to modify the teachings of Vayanos to include the further teachings of Yun. **The Examiner, however, provides no basis, discernible from the prior art, to simultaneously use such mechanisms, between a user equipment and a base station and the base station and the control element, in order to reduce uplink retransmission delays.**

The Examiner has not pointed to a teaching or suggestion in either reference, or established a basis for why one of *ordinary* skill in the art would recognize that by combining the retransmission mechanisms between both the user equipment and base station, **and** base station and control element, uplink retransmission delays would be reduced. All inventions are, *necessarily*, combinations of elements known in the prior art; only God works from scratch. But to render a novel solution to a problem unpatentable, it must be established why one of ordinary skill in the art would elect to combine the knowledge of the prior art to arrive at the claimed invention. In this case, the Examiner has not established why one of ordinary skill in the art would do so and, therefore, **the Examiner not established a prima facie case of obviousness of claim 1.** Whereas claims 2-9, 11 and 12 are dependent from claim 1, and include the limitations thereof, they are also not obvious over Vayanos in view of Yun.

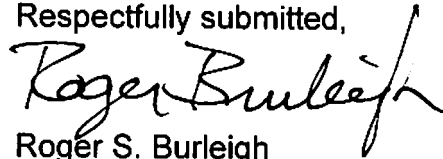
- 2.) **Claim 10 is patentable over Vayanos, *et al.* (U.S. Patent No. 6,901,063) in view of Yun, *et al.* (U.S. Patent Publication No. 2002/0176362) and Puuskari (U.S. Patent No. 7,330,439)**

As established *supra*, claim 1 is not obvious over Vayanos in view of Yun. The Examiner has not pointed to any teaching in Puuskari of the limitations of claim 1. Therefore, whereas claim 10 is dependent from claim 1, and includes the limitations thereof, it is not obvious over Vayanos in view of Yun and Puuskari.

CONCLUSION

For the foregoing reasons, claims 1-12 are patentable over the teachings of Vayanos, Yun and Puuskari, and the Applicants request that the Examiner's rejections thereof be reversed and the application be remanded for further prosecution.

Respectfully submitted,



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Date: ____ June 14, 2010 ____

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CLAIMS APPENDIX

1. (Previously Presented) A method of reducing impact of transmission errors by means of a retransmission protocol, utilizing a retransmission loop involving packet radio transmissions from user equipment to a control element connected to one or more radio base stations, wherein the user equipment radio transmissions are received at one or more radio base stations for forwarding to the control element, the base station acknowledging, positively or negatively, transmissions from the user equipment and the control element acknowledging, positively or negatively, transmissions forwarded to it.
2. (Previously Presented) The method according to claim 1, wherein for a process of retransmission, if same transmitted packet information content is received more than once, the received transmissions are combined.
3. (Previously Presented) The method according to claim 2, wherein successive received packet transmissions of the same information content are combined in the base station prior to determining whether or not the radio base station should acknowledge the transmitted information content.
4. (Previously Presented) The method according to claim 2, wherein whether or not the packet information content is the same is determined by means of a new data indicator.
5. (Previously Presented) The method according to claim 4, wherein the new data indicator, accompanying packet information, is transmitted on a reliable control channel.
6. (Previously Presented) The method according to claim 2, wherein the process is identified by means of a process identity.

7. (Previously Presented) The method according to claim 6, wherein the process identity, accompanying packet information, is transmitted on a reliable control channel.
8. (Previously Presented) The method according to claim 1, wherein the control element reorders received packets.
9. (Previously Presented) The method according to claim 8, wherein the received packets are reordered into sequential order.
10. (Previously Presented) The method according to claim 9, wherein the sequential order is determined from RLC sequence number.
11. (Previously Presented) The method according to claim 9, wherein the sequential order is determined from MAC sequence number.
12. (Previously Presented) The method according to claim 1, wherein the method reduces delay of uplink transmissions, the delay being associated with the retransmissions.
- 13-42. (Cancelled)

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EVIDENCE APPENDIX

None.

RELATED PROCEEDINGS APPENDIX

None.